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Bjoern Haase

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7590

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EXAMINER

WHITTINGTON, KENNETH

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,285	Applicant(s) HAASE, BJOERN	
	Examiner KENNETH J. WHITTINGTON	Art Unit 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 6-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment filed June 19, 2008 and the Supplemental Amendment filed July 10, 2008 have been entered and considered. In view thereof, the objections to the Abstract and claims 2 and 4 are withdrawn. Furthermore, the rejections of claims 1-14 under 35 USC 112 are also withdrawn.

Specification

The amendment filed July 10, 2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: FIGS. 5 and 6.

In this Amendment, Applicants have filed two new drawings to be added to the specification, FIG. 5 showing a drill or chiseling tool and FIG. 6 showing a hand held device. While Applicants make a reference to certain portions of the specification as containing a disclosure for these figures (i.e., page 9, fourth paragraph for FIG. 5, page 6, second full paragraph and page 15, second full paragraph), these portions of the specification merely note that the apparatus of the invention can be incorporated into such device, with no detail as to the particular device claimed or how the invention can be incorporated into such device. The submitted drawings contain explicit detail as to the drilling/chiseling apparatus and to the hand held device that is not described or contemplated in the specification as filed and is accordingly new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

Drawings

The drawings were received on July 10, 2008. These drawings are objected for the reasons outlined in the Objections to the Specification as noted above as containing new matter.

Claim Objections

Claim 9 is objected to because of the following informalities: it depends from a cancelled claim. This claim should to depend from claim 1 or 6. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: "the printed circuit board" lacks antecedent basis. This claim should depend from claim 9. Appropriate correction is required.

Claim 10 is objected to because of the following informalities: "the at least one transmit coil" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 7, 8, 11 and 13-19 rejected under 35 U.S.C. 102(b) as being anticipated by Greenwood et al. (GB117507), hereinafter Greenwood.

Regarding claim 1, Greenwood discloses a device for locating metallic objects, with one transmit coil (See Greenwood FIGS. 1 and 5, item 6) and one receive turn system (See Greenwood FIGS. 1 and 5, note coil 5), which are inductively coupled to one another, wherein electrical switching means are provided, which make it possible to vary the number of turns of the at least one receive turn system (See FIG. 5, item 7), wherein the number of turns of the at least one receive coil is variable by connecting or disconnecting electrical conductor modules, and wherein connected electrical conductor modules are coupled with the transmit coil (See FIGS. 1 and 5, note coil 5 is separated into receive coils and connector modules, the switch 7 connecting one or more of the conductor modules to the receive coils, all of which are magnetically coupled to the transmit coil when it is being operated with a current there through).

Regarding claim 3, Greenwood discloses the switching means are located between turns of a first receive coil and turns of a second receive coil (See FIG. 5, items 7 and 5).

Regarding claim 7, Greenwood discloses at least two receive coils are located coaxially relative to each other (See FIGS. 1 and 5, note three sections, receive coils are coaxial).

Regarding claim 8, Greenwood discloses the receive coils located in a plane (See FIGS. 1 and 5, note receive coils are all located in a plane).

Regarding claim 11, Greenwood discloses the transmit coil located in a plane which is positioned with a height offset and is parallel to the at least one receive coil (See FIGS. 1 and 5, note position of coils 5 and 6).

Regarding claim 13, Greenwood teaches a measuring device with a device as recited in claim 1 (See discussion of claim 1 above).

Regarding claim 14, Greenwood discloses a tool device with a device as recited in claim 1 (See discussion of claim 1 above).

Regarding claim 15, Greenwood discloses a method for operating an inductive compensation sensor, with at least one transmit coil and at least one receive turn system, comprising the following steps,

adjusting a voltage U induced in a receive coil by connecting an adjustment turn system to turns of the receive turn system, this adjustment turn system including one or more compensation modules (See FIGS. 1 and 5, note coil 5 is separated into receive coils and connector modules, the switch 7 connecting one or more of the conductor modules to the receive coils, all of which are magnetically coupled to the transmit coil when it is being operated with a current there through).

Regarding claim 16, Greenwood discloses for each compensation module, it is possible to switch between m different alternative configurations of the electrical contacting (See FIG. 5, note each loop of receiver coil 5, i.e., receiver coils and compensation modules coils gives a difference configuration).

Regarding claim 17, Greenwood discloses the adjustment turn system is composed of at least n independent compensation modules, each having different configurations, in which a voltage change is induced, with $\Delta U = (U(n,m) - U(n,m+1))$, in the receiving branch of the compensation sensor by selectively switching between individual configurations m of a compensation module KM_n (See FIGS. 1 and 5, note

items 5, 6, note voltage changes induced when more or less coils of the coil 5 is selected via switch 7 in the manner as claimed).

Regarding claim 18, as best understood, Greenwood discloses the compensation modules KM_n are configured such that the voltage change differs from the voltage difference $\Delta U_{n-1,m}$, with $\Delta U_{n-1,m} = (U(n-1,m) - U(n-1,m+1))$, of compensation module KM_{n-1} by the factor $M(n-1)$, with an ordinal number n reduced by one (See FIGS. 1 and 5, note items 5, 6, note voltage changes induced when more or less coils of the coil 5 is selected via switch 7 in the manner as claimed).

Regarding claim 19, as best understood, Greenwood discloses wherein binary coding with $M(n)=2$ is used for the compensation modules KM_n of the adjustment turn system, so that the relationship $\Delta U = (U(n,1) - U(n,2)) = 2 * (U(n-1,1) - U(n-1,2))$ applies (See FIGS. 1 and 5, note items 5, 6, note voltage changes induced when more or less coils of the coil 5 is selected via switch 7 in the manner as claimed, if one coil is added, a certain change is induced, if two coils are added, twice the certain change is induced).

Claims 1, 3, 4 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Nelson (US7167691).

Regarding claim 1, Nelson discloses a device for locating metallic objects, with one transmit coil (See Nelson FIGS. 1 and 2b, note transmitter) and one receive turn system with at least one receiver coil (See Nelson FIGS. 1 and 2b, note receiver coils), which are inductively coupled to one another, wherein electrical switching means are provided, which make it possible to vary the effective number of turns of the one receive

turn system (See FIGS. 5-7, note switches 52 between turns), wherein the number of turns of the at least one receive coil is variable by connecting or disconnecting electrical conductor modules, and wherein connected electrical conductor modules are coupled with the transmit coil (See FIGS. 5-7, note receiver coils and switches between turns creating receive coils with conductor modules connected therewith, note all are magnetically coupled to the transmitter).

Regarding claim 3, Nelson discloses the switching means are located between turns of a first receive coil and turns of a second receive coil (See FIG. 5, note switches 52).

Regarding claim 4, Nelson discloses jumpers with switching means are located between receive coil turns with a different radius R_a or R_b (See FIGS. 5-7, note switches between different radii coil loops).

Regarding claim 8, Nelson discloses the receive coils located in a plane (See FIGS. 5-7, note coils in planes shown).

Claims 1, 4, 6, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Harvey et al. (US7202768), hereinafter Harvey.

Regarding claim 1, Harvey discloses a device, with one transmit coil (See Harvey FIG. 4, item 14, note transmitter 9 and other shown) and one receive turn system with at least one receiver coil (See Nelson FIGS. 4 and 7, note receiver coils 32 and others shown), which are inductively coupled to one another, wherein electrical switching means are provided, which make it possible to vary the effective number of turns of the

one receive turn system (See FIGS. 4 and 7, note switches between turns), wherein the number of turns of the at least one receive coil is variable by connecting or disconnecting electrical conductor modules, and wherein connected electrical conductor modules are coupled with the transmit coil (See FIGS. 4 and 7, note receiver coils and switches between turns creating receive coils with conductor modules connected therewith, note all are magnetically coupled to the transmitter).

Regarding claim 4, Harvey discloses jumpers with switching means are located between receive coil turns with a different radius R_a or R_b (See FIGS. 4 and 7, note switches between different radii coil loops).

Regarding claim 6, Eaton discloses the switching means are realized using semiconductor components (See col. 3, lines 43-50).

Regarding claim 9, Eaton discloses at least two receive coils are designed as printed circuit coils on a printed circuit board (See col. 6, lines 11-32).

Regarding claim 10, Eaton discloses the switching means are realized using semiconductor switches on the printed circuit board (See col. 3, lines 43-50 and col. 6, lines 11-32).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Candy (US6686742). Regarding claim 6, Nelson teaches the features of claim 1 as noted above and further the use of reed switches or IC switches, but not the switching means being semiconductor switches. Candy teaches using semiconductor switches (See Candy col. 3, lines 6-20). It would have been obvious at the time the invention was made to incorporate any of the noted switches into the apparatus of Nelson. One having ordinary skill in the art would do so because all such switches are equally available for use in metal detectors for closing and opening circuits as taught in Nelson and Candy in the noted portions.

Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenwood in view of Weber (US4486712).

Regarding claim 9, Greenwood teaches the features noted above, but not the coils being printed circuit board coils. Weber teaches a metal detector design wherein the coils may be contained on a printed circuit board (See Weber col. 6, lines 57-68). It would have been obvious at the time the invention was made to incorporate the receiver coils of Greenwood onto a printed circuit board. One having ordinary skill in the art would do so to provide a compact coil design (See Weber col. 6, lines 57-68).

Regarding claim 12, this combination teaches the transmit coil is installed to a bobbin, which is attached to the printed circuit board (See Greenwood FIG. 2, note that if receive coil 5 is attached to printed circuit board, the transmit coil 6 would be attached to bobbin 13 which is attached to the receive coil assembly via item 15).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson in view of Candy as applied to claim 6 above, and further in view of Weber. Nelson in view of Candy teaches the features of claim 6 above, but not a printed circuit board assembly. Weber teaches a metal detector design wherein the coils may be contained on a printed circuit board (See Weber col. 6, lines 57-68). It would have been obvious at the time the invention was made to incorporate the coils onto a printed circuit board. One having ordinary skill in the art would do so to provide a compact coil design (See Weber col. 6, lines 57-68).

Response to Arguments

Applicant's arguments filed July 10, 2008 and June 19, 2008 have been fully considered but they are not persuasive.

The first argument asserted by Applicants is that Greenwood discloses the receive coils located remote from the transmit coil and thus are not coupled as recited in the claims. However, as shown in FIGS. 1 and 5 of Greenwood, the transmit coil 6 and receive coil 5, which is variable in inductance, are directly coupled together to provide a balance to the remaining portion of the circuit.

Next Applicant notes that the compensation modules are incorporated into a sensor head. However, this is not claimed and thus such arguments will not be considered until claimed.

Finally, Applicants note that claim 1 now requires the number of turns to be variable by connecting conductor modules which are coupled with the transmit coil. This is explicitly shown in Greenwood as noted above.

For the forgoing reasons and the rejections outlined above, Greenwood is a proper reference and thus the rejections applying Greenwood remain.

It is finally noted that Applicants have made numerous amendments to the specification and claims which have raised issues as noted in this action above. Due to the nature of the objections and rejections, this action is made Non-Final to provide time to address such issues.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH J. WHITTINGTON whose telephone number is (571)272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2862

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth J Whittington/
Primary Examiner, Art Unit 2862